



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

Charles D. Baker
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Secretary

Martin Suuberg
Commissioner

Date Stamped November 18, 2015

Mr. Ian Campbell
Massport Logan International Airport
1 Harborside Drive
East Boston, MA 02128

RE: East Boston
Transmittal No.: X267477
Application No.: NE-15-010
Class: *OP*
FMF No.: 52936
AIR QUALITY PLAN APPROVAL

Dear Mr. Campbell:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed installation and operation of three (3) portable snowmelters (referred to as snowmelter "R", "S" and "T" and/or "Emission Unit 94, 95, and 96") at your facility located at 1 Harborside Drive in East Boston, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

The Massachusetts Port Authority (“the Permittee”) owns and operates Logan International Airport (Logan), a 2,400-acre facility located in East Boston. It is a full-service airport, which accommodates a wide range of aircraft providing domestic and international passenger transport to over 26 million passengers annually, air cargo handling, and general aviation. Logan consists of over 50 buildings, six runways, adjoining taxiways, a cooling/heating plant that houses the largest emission units, and many ancillary facilities. The complex employs over 16,000 people and houses numerous tenant businesses.

One of the various operations conducted by Massport is snow removal. The Permittee currently owns and operates a fleet of 15 portable snowmelters, designated by the Permittee as “A” through “L”, “O”, “P”, and “Q” at Logan International Airport. The Permittee proposes to install and operate three additional Trecan 135-PD portable snowmelters, capable of melting up to 135 tons of snow per hour. One new Trecan 135-PD portable snowmelter, powered by a 225 break horsepower Cummins QSB6.7 diesel engine, will be designated as snowmelter “R”. Snowmelter “S”, which was previously operated at Massport’s Boston Fish Pier, will be relocated to Logan Airport. Snowmelter “S” will be powered by a new John Deere PowerTech PVS 6.8L diesel engine which will meet U.S. Environmental Protection Agency (USEPA) Tier 4 Final Emission Standards. Snowmelter “T”, which was previously operated at Massport’s P.W. Conley Terminal, will be relocated to Logan Airport. Snowmelter “T” will also be powered by a new John Deere PowerTech PVS 6.8L diesel engine meeting USEPA Tier 4 Final Emission Standards. Each snowmelter consists of three major sections. A fuel tank is mounted on the front deck of the trailer, the mid-section of the trailer houses the melting tank, and the rear section holds a diesel engine, the combustion air blower, and related control equipment. Each melting tank contains two burners, each burner has a heat input capacity of 12 million British thermal units per hour (MMBtu/hr), yielding a total of 24 MMBtu/hr heat input into the melting tank. The two high velocity, high heat release burners are fired directly into a pool of water within the melting tank, agitating and heating the water. Combustion takes place within the burners and the hot combustion gases are forced down below the water level and then channel up through a concentric weir. Snow is added to the melting tank where it comes into contact with the turbulent warm water and is melted. The water that results from the melting operation is drained into a local storm drain.

The engines that power the combustion air blowers, burner fuel oil pumps, and generates power for the snowmelter’s control systems are subject to and meet the Tier 4 Final emission standards for non-road compression ignition engines as defined by the United States Environmental Protection Agency (40 CFR 1039). The engines have exhaust gas recirculation (EGR) and a variable geometry turbocharger (VGT). The EGR cools and mixes measured amounts of cooled exhaust gas with incoming fresh air to lower peak combustion temperatures, thereby reducing oxides of nitrogen (NOx). The VGT varies exhaust based on load and speed to ensure proper EGR flow. These engines utilize a diesel oxidation catalyst (DOC), which reacts with the exhaust gases to reduce carbon monoxide, hydrocarbons, and some particulate matter (PM). These engines also employ selective catalytic reduction (SCR) technology to reduce NOx emissions.

2. EMISSION UNIT (EU) IDENTIFICATION

The Emission Units (EU) identified in Table 1 are subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
EU 94 “Snowmelter R”	Portable Trecan Snowmelter model 135-PD with Cummins Tier 4 Final engine (model QSB6.7) firing only ultra low sulfur diesel (ULSD) with a sulfur content not to exceed 0.0015% by weight	Burner in melt tank: 12 MMBtu/hr each; total of 24 MMBtu/hr (2 burners total)	N/A
		Engine: 1.56 MMBtu/hr	Variable Geometry Turbochargers (VGT), Exhaust Gas Recirculation (ERG), diesel oxidation catalyst (DOC) and selective catalytic reduction (SCR)
EU 95 “Snowmelter S”	Portable Trecan Snowmelter model 135-PD with John Deere Tier 4 Final engine (PowerTech PVS) firing only ULSD with a sulfur content not to exceed 0.0015% by weight	Burner in melt tank: 12 MMBtu/hr each; total of 24 MMBtu/hr (2 burners total)	N/A
		Engine: 1.28 MMBtu/hr	Variable Geometry Turbochargers (VGT), Exhaust Gas Recirculation (ERG), diesel oxidation catalyst (DOC) and selective catalytic reduction (SCR)
EU 96 “Snowmelter T”	Portable Trecan Snowmelter model 135-PD with John Deere Tier 4 Final engine (Power Tech PVS) firing only ULSD with a sulfur content not to exceed 0.0015% by weight	Burner in melt tank: 12 MMBtu/hr each; total of 24 MMBtu/hr (2 burners total)	N/A
		Engine: 1.28 MMBtu/hr	Variable Geometry Turbochargers (VGT), Exhaust Gas Recirculation (ERG), diesel oxidation catalyst (DOC) and selective catalytic reduction (SCR)

Table 1 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

MMBtu/hr = million British thermal units per hour

ULSD = ultra low sulfur diesel

% = percent

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2						
Emission Unit Number	Pollutant	Operational / Production Limit ¹	engine (pounds/hour)	Burners in melting tank (pounds/hour)	Allowable Emissions Tons per Month ²	Allowable Emissions Tons per Rolling 12 Month Period ²
EU 94	NOx	Fuel limits are 36,420 gallons per month and 54,630 gallons per rolling 12 months. ULSD, with a sulfur content not to exceed 0.0015% by weight, shall be the only fuel used in the snowmelter	0.15	3.42	0.36	0.54
	CO		1.3	1.4	0.27	0.41
	VOC		0.07	0.06	0.013	0.02
	PM		0.007	0.34	0.035	0.05
	SO2		0.002	0.04	0.004	0.006
	HAPs		0.006	0.012	0.002	0.003
	CO ₂		250	3820	407	611
	Opacity		< 10 % (exclusive of uncombined water)			
EU 95 & EU 96 (production and emission limits given for each unit)	NOx	Fuel limits are 36,080 gallons per month and 54,120 gallons per rolling 12 months. ULSD, with a sulfur content not to exceed 0.0015% by weight, shall	0.12	3.42	0.35	0.53
	CO		1.1	1.4	0.25	0.38
	VOC		0.06	0.06	0.012	0.02
	PM		0.006	0.34	0.035	0.05
	SO2		0.002	0.04	0.004	0.006
	HAPs		0.005	0.012	0.002	0.003
	CO ₂		210	3820	403	605

Table 2						
Emission Unit Number	Pollutant	Operational / Production Limit ¹	engine (pounds/hour)	Burners in melting tank (pounds/hour)	Allowable Emissions Tons per Month ²	Allowable Emissions Tons per Rolling 12 Month Period ²
	Opacity	be the only fuel used in the snowmelter	< 10 % (exclusive of uncombined water)			

Table 2 Key:

NO_x = Nitrogen Oxides

CO = Carbon Monoxide

VOC = Volatile Organic Compounds

PM = Total Particulate Matter

SO₂ = Sulfur Dioxide

HAPs (total) = total Hazardous Air Pollutants.

CO₂ = Carbon Dioxide

ULSD = ultra low sulfur diesel

Footnote:

1) The monthly fuel limits are based on operating each portable snowmelter for 200 hours, and the twelve month rolling fuel limits are based on operating each portable snowmelter for 300 hours.

2.) The monthly and twelve month rolling allowable emissions are based on the engine and burners operating simultaneously for 200 hours and 300 hours respectively.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
EU 94, EU 95 and EU 96	1. In accordance with 310 CMR 7.04(4)(a), inspect and maintain the burners associated with the snowmelter in accordance with the manufacturer's recommendations and test for efficient operation at least once in each calendar year. The results of said inspection, maintenance and testing and the date upon which it was performed shall be recorded and posted conspicuously on or near the permitted equipment.
	2. The subject snowmelters shall each be operated on an as needed basis only. The maximum fuel consumption restrictions given in Table 2 above equates to 200 hours of operation in one month and 300 hours of operation per rolling 12-month period respectively. Monitor the hours of operation of each engine and each burner to calculate the gallons of fuel combusted in each snowmelter on a daily basis when in operation.
	3. Monitor sulfur content of each new shipment of fuel oil received. Sulfur content of the fuel can be demonstrated through fuel analysis. The analysis of sulfur content of the fuel shall be in accordance with the applicable American Society for Testing Materials (ASTM) test methods or any other method approved by the MassDEP and EPA. Fuel sulfur information may be provided by fuel suppliers.
Facility -wide	4. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.
	5. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.

Table 3 Key:

EU# = Emission Unit Number

CMR = Code of Massachusetts Regulations

Table 4	
EU#	Record Keeping Requirements
EU 94, EU 95 and EU 96	1. Maintain records of the inspection and maintenance activities performed on the approved Emission Units, and monitoring equipment in accordance with 310 CMR 7.04(4)(a) and manufacturer's recommendations. The records shall include, at a minimum, the type or a description of the inspection and/or maintenance activities performed and the date and time the work was completed.
	2. Record and maintain records of the amount of fuel combusted in each snowmelter and record the associated emissions based on fuel consumption, including the hours of operation of each engine and each burner. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report . The actual emissions shall not exceed the allowable emissions in Table 2 for monthly and twelve month rolling emissions respectively.
	3. Maintain fuel oil analysis results used to demonstrate compliance status with the fuel oil sulfur content requirement contained in Table 2 above.

Table 4

EU#	Record Keeping Requirements
EU 94, EU 95 and EU 96	<p>4. A recordkeeping system shall be established and continued on site. All records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination. Record keeping for the approved Emission Units and monitoring equipment shall, at a minimum, include:</p> <ul style="list-style-type: none"> a) The initiation and completion dates for the proposed construction. b) Fuel usage log. c) Maintenance. A record of routine maintenance activities including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed. d) Malfunctions. A record of all malfunctions including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the facility returned to compliance. e) Records shall be maintained documenting the air contaminant emission analysis supporting the response to BWP AQ -1 Section D. f) All records shall be kept on site for five (5) years from date of record and shall be made available to MassDEP upon request.
	<p>5. Maintain a copy of this Plan Approval, underlying Application and the most up-to-date Standard Operating and Maintenance Procedure (SOMP) for the Emission Units approved herein on-site.</p>
	<p>6. A copy of this Plan Approval, underlying Application and the most up-to-date SOMP shall be easily accessible to personnel operating the subject equipment and for inspection by MassDEP personnel upon request.</p>
	<p>7. Maintain records required by this Plan Approval on-site for a minimum of five (5) years.</p>

Table 4	
EU#	Record Keeping Requirements
EU 94, EU 95 and EU 96	8. Make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.
Facility- Wide	9. In accordance with 310 CMR 7.13, maintain records of the results of any compliance testing (stack testing) so that the reporting requirement in Table 5 of this Plan Approval can be met.
	10. Maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.

Table 4 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

SOMP = Standard Operating and Maintenance Procedure

USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
EU 94, EU 95 and EU 96	1. Notify the Northeast Regional Office of MassDEP, Permit Chief by telephone at 978-694-3200, email at nero.air@state.ma.us or by fax 978-694-3499, as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	2. Submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	3. Provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s request.
Facility- wide	4. Submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 ‘Monitoring and Testing Requirements’.
	5. Submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 ‘Monitoring and Testing Requirements’.
	6. Report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. Note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.

Table 5 Key:

EU# = Emission Unit Number

4. **SPECIAL TERMS AND CONDITIONS**

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
EU 94, EU 95 and EU 96	1. No person shall operate a fuel utilization facility constructed, substantially reconstructed, or altered pursuant to 310 CMR 7.02(2) except in conformance with the requirements established therein and in conformance with the specific written plan approval requirements.
	2. The subject snowmelters shall be operated only on an as needed basis.
	3. The subject snowmelters shall operate such that the exhaust will not impact any fresh air intakes for any buildings or other structures located on property.
	4. This Final Approval does not negate the responsibility of owner/ operator of the referenced facility to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this approval imply compliance with any other applicable federal, state or local regulation now or in the future.

Table 6 Key:

EU# = Emission Unit Number

- B. The Permittee shall install and use exhaust stacks, as required in Table 7, on the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
EU 94 (engine)	12	1.05	15.9	698
EU 95 (engine)	12	1.05	15.9	675
EU 96 (engine)	12	1.05	15.9	675

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Amy LaPusata by telephone at 978-694-3200, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Amy E. LaPusata
Environmental Engineer
Bureau of Air and Waste

Susan P. Ruch
Acting Permit Section Chief and
Deputy Regional Director

Bureau of Air and Waste

Enclosure

ecc: boardofhealth@bphc.org
JenniferR.bfd@ci.boston.ma.us (Boston Fire Department)
MassDEP/Boston - Yi Tian
MassDEP/NERO – Edward Braczyk

cc: MassDEP/NERO - Main File